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ABSTRACT

This five day unit, designed specifically for the third grade level, integrates the social and natural sciences. The unit introduces students to how plants were used in the past, and how they are used today. It also incorporates critical thinking skills that will encourage students to explore how plants will play a role in our future. The first lesson introduces students to how the first settlers, the Pilgrims, brought plants with them to the new world. The second lesson discusses how the Native Americans helped the Pilgrims by introducing them to the native wild plants. Lesson 3 explores how settlers used plants as medicine. Lesson 4 is about how the early settlers used plants for household use. Lesson 5 includes a test on the unit, and introduces students to the important role that plants will play in the future. (DB)

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Over Head

and

Under Foot

An Integrated Unit Lesson Plan

by

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ABSTRACT

This is a five day unit plan which integrates the subjects of social and natural science. The social science piece explores how plants were used by the early settlers, and how the native American Indians taught the settlers how to utilize the native plants of North America. The science part of this unit discusses the parts of plants and the function of each part. Students will learn how to take care and be responsible for their own plants. They will receive instruction on the different structures that makeup a stem, and how plants continue to thrive through seeds. Students will learn that plants are a vital piece of our environment and are essential for the existence of many living organisms. Without plants many of these organisms would disappear.

This unit will introduce students to how plants were used in the past, and how they are presently used today. It will also incorporate critical thinking skills that will encourage students to explore how plants will play a role in our future.

Learning about the uses and care for plants is important for students as we near the 21st century because the planting of trees and other plants helps to supply our earth with oxygen. Plants also provide many living organisms with food, homes, and other essential products. Children need to learn how to conserve, take care of, and use plants effectively in order for our planet to survive.

This unit plan has been designed specifically for a third grade level, but may be adapted for the use of other grades. The

first lesson will introduce students to how the first settlers, the Pilgrims, brought plants with them to the new world. At this time students will start their own time line, or chart, so that they can compare the uses of plants in the past and with the uses today. Students will brainstorm on how plants are used today.
Students will be able to see how some wild plants can be used as food. Students will dissect, illustrate and name the separate parts of a plant in their science journals.

The second lesson will discuss how the native Americans helped the Pilgrims by introducing them to the native wild plants. This lesson will mention some of the native plants of the eastern United States.

Students will learn what a plant requires in order to survive. Each student will be responsible for taking care of his/her own plant.

Lesson three explores how settlers used plants as medicine. It introduces how the juice of an Aloe Vera plant is used to treat sunburns. Students will also work cooperatively in groups to discover which type of stem structure and thickness is the strongest.

Lesson four is about how the early settler used plants for household use. Students will research, write, and design a garden that represents the garden of an early settler. They will be required to name and define what the plants were used for through researching and assistance by the teacher or classroom aide. Students will then explore how many plants that once grew in the settler's gardens are now grow wild. They will also discover how

seeds travel.

Lesson five includes a test on their unit. The teacher will then introduce students to the important role that plants will play in our future, by planting trees to keep the ozone from depleting, and plants seeds or seedlings to nourish the soil. Students will be asked to adopt a piece of earth, where they as a group can plant flowers or seedlings. The out come of this activity will hopefully make them responsible contributing members to society.

Purpose of Unit: The purpose of this unit is to introduce students to the role that plants play in the Earth's ecosystem. This unit will help to show children that plants are the key to life on Earth. Without plants many living organisms would disappear. Many animals depend on plants directly or indirectly as a source of food and shelter.

The goal of this unit is to inform and encourage students to become responsible contributing members of society, by having them learn the important and critical role that plants have played throughout history. Plants have been a valuable natural resource to our Earth. Plants have a number of uses and provide us with many products.

Children as they enter the 21st century must realize that in order for many living organisms to survive, we need to learn how take care of plants and use them effectively.

Lesson # 1

Grade Level: 3rd grade

Time: 80 minutes

Objectives: 1. Students will be able to explain how the Pilgrims brought new plants to America. 2. Students will be able to give some examples of how plants were used in the past and how they are used today. 3. Students will be able to draw, name, and give the function of the following parts of a plant; stem, blossom, leaf, tendril, and stomata.

Method: Students will engage in learning by performing hands on experiments and discussion. Students will learn by discovery.

Guidelines for Behavior: 1. Students will show respect for other individuals by listening while others are speaking and raising their hands when they wish to speak or contribute to the conversation. 2. Before going outside, students will be reminded to walk quietly and in a straight line. 3. Students will actively engage and participate in classroom activities. 4. Students will express creativity through participation in classroom activities.

Activities/Procedure:

1. Introduce your lesson by hanging a long piece of paper up where the children can see it. On the top of it write in large letters "Plants Are Important". Tell the class

that this is their own personal time line that they can fill in as we study and learn about plants.

2. Begin by asking the students, 1.) "How do we use plants today? 2.) Can you think of anything that is made from a plant or a tree? 3.) What do plants give us?" Write the children's responses under the present or the appropriate year.
3. Then talk about the other side of the time line. Show the children that their time line will start when the first settlers, the Pilgrims, arrived in America.
4. Ask the class who the Pilgrims were and why they came here. Ask the students if there were plants in America before the settlers came. Ask them whether the settlers knew what the environment was like before they came.
5. Read from Dandelions, Pokeweed, and Goosefoot (Schaffer, 1972, p 8.) about how the early settlers carried seeds and plants to the new world.
6. Talk about some of the plants that they brought with them to the new world. Some examples might be Dandelions, Catnip, Mint (Mentha) and so on. . . Ask students what they think dandelions might be used for? Tell the class that today you are going to pick dandelions. This should be done in the spring of the year before the dandelion blossoms.
7. Read to them from The Amazing Dandelion (Selsam, & Wexler, 1977, p. 42) on how dandelions can be used to eat. Remind the students on how they are to walk out to

the playground. Give them each a spoon and tell them that they are going to dig the dandelion by its roots. Tell the class that today we are going to make dandelion greens. After you are finished bring the leaves inside and wash them separately. Boil the leaves until they are tender. While dandelion are cooking, have the children predict what the dandelion greens will taste like. Ask the class to think of other plants that people eat. When the dandelion greens are finished cooking, strain and serve with butter or vinegar. Here is the recipe for dandelion greens.

Dandelion Greens

recipe by Edora Jean

Dig the dandelion out by the roots. Wash each leaf separately and cut off roots. (This should be done in the spring of the year before dandelion blossoms.) Boil leaves until they are tender. Strain and add butter or vinegar for flavor if you wish. Leaves may also be cleaned and used in salads just add cucumber, carrots or other vegetables. Dandelion leaves can also be purchased at seed houses. They are larger and have a sweeter taste than wild dandelions.

8. Review the parts of a plant on an overhead. Discuss the function of each part of the plant such as root, stem, leaf, blossom, tendril and stomata. Hand out to the class

their ongoing science journals on plants. Ask the class to rip some dandelions apart and look at them under a magnifying glass. Ask them to draw the dandelion and label the parts of the plant. Have them pass them in once they are finished. Review the lesson orally. (See Questions on # 1). Afterwards have some members of the class add to the outline. (See sample time line on # 1 through #5).

Materials: Overhead, spoons to dig with, dandelion leaves, cooking utensils, strainer, small hot pot, and magnifying glass.

Resources:

Schaffer, E. (1972), Dandelions, Pokeweed, and Goosefoot, How The Early Settlers Used Plants For Food, Medicine, And In The Home. Reading, MA: Young Scott Books.

Selsam, M. and Wexler, J. (1977), The Amazing Dandelion. New York, NY: William Morrow and Co.

Means of evaluation: Assessment will be made daily by science journals and class review. (See questions on # 1).

Review Questions for Lesson # 1

1.) Were there plants in the new world before the settlers came?

2.) Who were the Pilgrims, and why did they come to America?

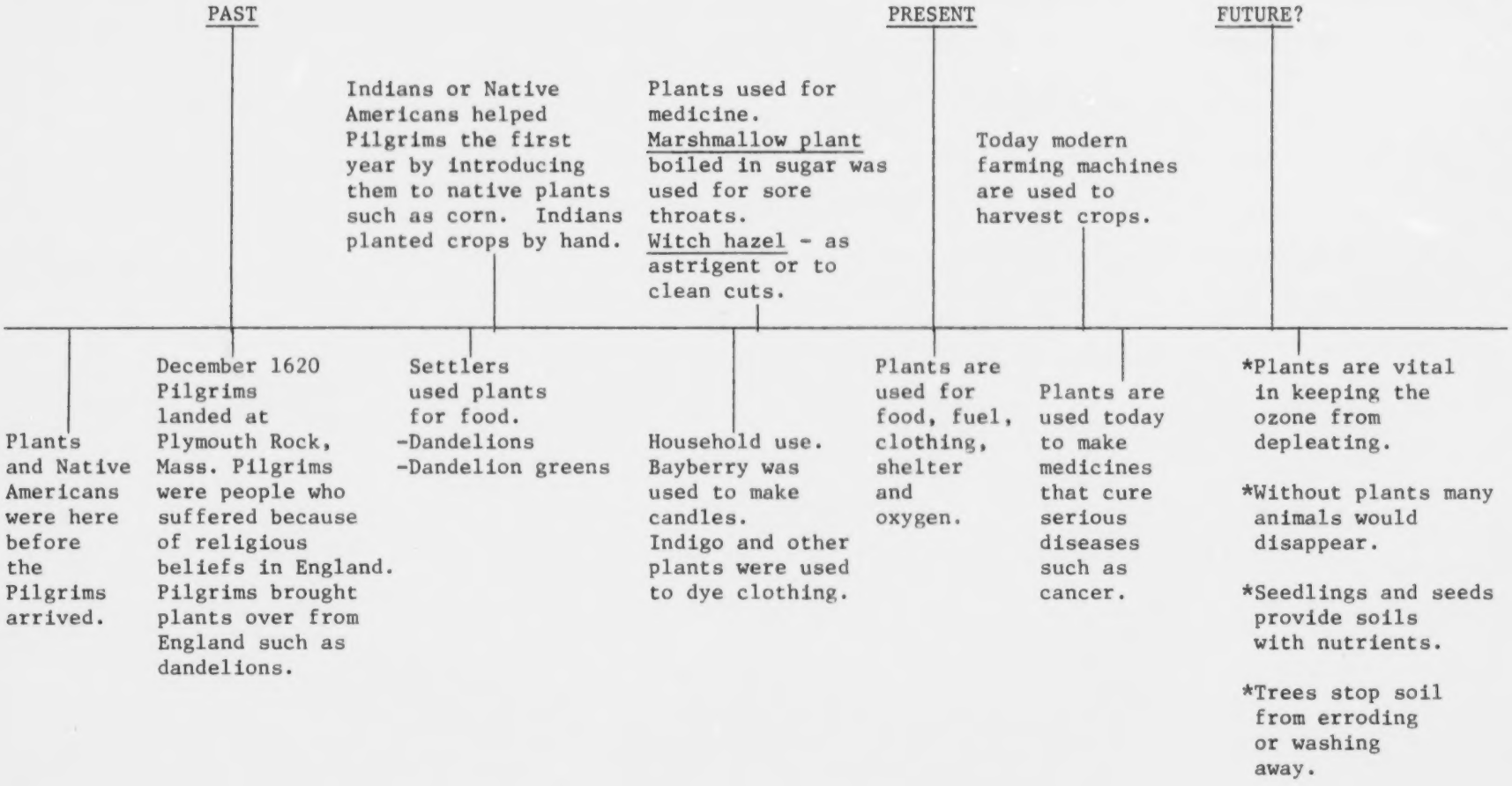
3.) What are two things that plants give to us today?

4.) Name two plants that the settlers brought with them to the new world.

5.) Name the parts of a plant, and their function?

Examples of what timeline might look like

PLANTS ARE IMPORTANT


PAST
PRESENT
FUTURE?
Plants and Native Americans were here before the Pilgrims arrived.
December 1620 Pilgrims landed at Plymouth Rock, Mass. Pilgrims were people who suffered because of religious beliefs in England. Pilgrims brought plants over from England such as dandelions.
Indians or Native Americans helped Pilgrims the first year by introducing them to native plants such as corn. Indians planted crops by hand.
Settlers used plants for food.
-Dandelions
-Dandelion greens
Plants used for medicine.
Marshmallow plant boiled in sugar was used for sore throats.
Witch hazel - as astrigent or to clean cuts.
Household use.
Bayberry was used to make candles.
Indigo and other plants were used to dye clothing.
Plants are used for food, fuel, clothing, shelter and oxygen.
Today modern farming machines are used to harvest crops.
Plants are used today to make medicines that cure serious diseases such as cancer.
*Plants are vital in keeping the ozone from depleating.
*Without plants many animals would disappear.
*Seedlings and seeds provide soils with nutrients.
*Trees stop soil from erroding or washing away.

Lesson Plan # 2

Grade Level: 3rd grade

Time: 80 minutes

Objectives: 1. Students will be able to explain how native Americans helped the Pilgrims to survive that first year. 2. Students will be able to list the needs of a plant in order to survive and make predictions as to what will happen to plants as they are placed in different environments. 3. Students will be able to name at least one native plant of America and one use. 4. Students will record and observe the growth of their own plant.

Method: Students will learn through discussion and hands on experiments. Learning will be based upon the child's own observation.

Guidelines for Behavior: 1. Students will respect others individual rights by listening while others are talking and raising their hands when they wish to speak.

Activities/Procedure:

1. Begin lesson by asking the class who were the native Americans and how they helped the Pilgrims. Read again from Dandelions, Pokeweed, and Goosefoot (Schaffer, 1972 p. 9) on how they taught the first settler how to look for and gather wild plants for food.
2. Ask the class where the native Americans lived in the

United States. Tell the class that the native Americans introduced the Pilgrims to corn which is a native plant of North America. Explain some of the different ways they prepared it such as by making a corn mush or what is known as Indian Pudding. Ask the class how they stored the corn, planted and harvest it. Explain that they planted mostly by hand. Ask them how farmers plant and harvest crops today?

3. Ask the children what happened if you got a red ear of corn. The colonist had a tradition of whoever picked an ear of red corn got to kiss whoever they wished. Show the children some ears of corn. In a bucket place four ears of red corn. Place regular or yellow corn in the bucket also. Make sure you have enough for each member of the class. Whoever picks an ear of red corn gets to be the science helper.
4. Before beginning science experiment review the parts and functions of a plant again. In their science journals have them write what they would be responsible for in taking care of a plant. Brainstorm on a large pad as to what they feel a plant would need. Tell them that these are called variables.
5. Then have one of your science helpers place a plant under a box where it is dark. Make sure that you puncture holes for air. Have another place plant # 2 in a cold place or a refrigerator to demonstrate temperature. Have the third student place a dry plant in the sun. Tell the class that

we will not water that plant. Then place the last one in the sun and tell them that we will water this plant.

6. Tell the class that we are going to test a hypothesis. A hypothesis is when you predict what will happen. Then on a large piece of paper write cold; warm- no water; warm and water; and cold. Have them predict what will happen. Write and hang predictions up. Record each day as a class. (See sample chart on # 2).
7. Then give each member of the class their own seedling. Have them label plant and tell them that they are responsible for taking care of that plant. Have them write a few sentences on what they are going to do for their plant and illustrate. Review lesson and have them pass in science journals. (See questions on # 2). Have some members of the class add information to time line.

Materials: Enough plants for each child in the classroom, four plants for experiment, chart or large graph paper, some ears of corn, include red corn but can be fashioned out of construction paper, bucket, and box.

Resources:

Catcher, Bonnie J., sister

Richards, R. (1990), An Early Start to Nature. London, England: Simon and Schuster.

Schaeffer, E. (1972), Dandelions, Pokeweed, and Goosefoot, How The Early Settlers Used Plants For Food, Medicine, And In

The Home. Reading, MA: Young Scott Books.

Means of Evaluation: Learning will be evaluated on through class participation, entries in science journals and class review. (See questions on sheet # 2).

Review Questions for Lesson # 2

1.) How did the Native Americans help the Pilgrims?

2.) Name one native plant in North America?

3.) How did the Native Americans plant and harvest corn?

4.) What are three things that a plant needs to survive?

CLASS CHART FROM LESSON 2	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	
PLANT IN COLD (refrigerator)						
PLANT IN DARK AREA						
PLANT WITHOUT WATER						
PLANT IN SUN WITH WATER						
19					20	

Lesson Plan #3

Grade Level: 3rd grade

Time: 80 minutes

Objectives: 1. Students will be able to explain how plants were used as medicine by early settlers and give at least one example. 2. Students will be able to explain how, and give an example of how, plants are used as medicine today. 3. Students will be able to compare the difference in stems structure and thickness by performing a hands-on experiment. 4. They will be able to name at least two of the different types of stems.

Method: Students will learn through discovery, discussion, and hands on experiments.

Guidelines for Behavior: 1. Students will actively engage in class and participate in activities. 2. Students will respect the individual rights of others by listening when someone is speaking and raising their hand when they have something to say. 3. When using paints or plants they will not throw nor try to eat the materials.

Activities/ Procedure:

1. Ask students where the early settlers obtained their medicine. Explain that much of their medicine came from plants. Give some examples. Some examples might be the plant marsh mallow was melted down and sugar added to cure

a sore throat. Today we use this as a candy or food. Another example would be witches' hazel.

2. Then show how plants are now being used to treat deadly diseases such as cancer. Many trees from our countries rain forest are being used now. Then show the class an Aloe Vera plant. Tell the class that the plant is used to treat burns. It is also found as a substance in many hand lotions. Cut into the plant and show them the juice inside. Pass around some samples.
3. Then have the class compare the difference between the shape of the dandelion stem and the aloe vera plant. Talk about how the structure and thickness of a plant determines how strong your stem will be.
4. Then divide the class into groups. Have them discover which type of stem is the strongest by performing the following experiment. Have them investigate which type of stem is the strongest by having them make the shapes in their work book, triangle, circle, square, and polygon. Using Cartridge or sugar paper, place a stiff paper balanced on top. Progressively add larger loads until the stem breaks. Have the groups try this with different thickness of paper. Have them record their results. (See sample of record sheets for lesson # 3). Later if their is time students may use the cut ends of stems to make print patterns and determine the shape.
5. Discuss later which shape and thickness is the strongest. Trees have our strongest stems. Show them a picture of a

Giant redwood and how massive its trunk is. Discuss the other types of stems such as climbing stems, woody stems, and garden flowers. Review your lesson and add to your time line. (See questions on # 3).

Materials: Different shaped stems, tape, cartridge or sugaring paper, ruler, cards of stiff paper, objects to load on stem, paint, and paper.

Resources Used:

Richards, R. (1990), An Early Start to Technology. London, England: Simon and Schuster.

Schaffer, E. (1972), Dandelion, Pokeweed, and Goosefoot, How The Early Settlers Used Plants For Food, Medicine, And In The Home. Reading, MA: Young Scott Books.

Means of evaluation: Assessment will be through science journals entries and oral review. (See questions on sheet # 3).

Review Questions for Lesson # 3

1.) Name some plants used by settlers as medicine?

2.) Are any of these plants used today? How?

3.) What are the three different types of stems?

4.) Which type of structure is the strongest? Give an example of that plant.

5.) Which type of structure is the weakest? Give an example.

LESSON #3

THICKNESS OF STEM

SIZE	LOAD
100 mm	
200 mm	
300 mm	

An Early Start to Technology, (Richards, 1990, p. 23)

LESSON #3

STEM STRUCTURE

SHAPE	LOAD

Lesson # 4

Grade Level: 3rd grade

Time: 80 minutes

Objectives: 1. Students will be able to describe at least one hold use settlers had to plant. 2. Students will be able to research, write and design their own colonial garden, each garden must have a plant that can be used as a source for medicine, food and household use. A total of six plants must be used. 3. Students will be able to describe the different ways in which seeds traveled.

Method: Students will be creatively designing and discovering information on their own.

Guidelines for Behavior: 1. Students will respect others individual rights by listening when someone else is speaking and raising their hands when they have something to say.

Activities/Procedure:

1. Tell the class that the settlers also used the plants for household use. Ask them what types of thing could they have used plants in the home. Give them the example of natural dyes for clothing or bayberry wax to make candles. Have the class add to the outline.
2. Tell the class that many colonist grew gardens that were divided up into squares. In these squares they would

plant different kinds of plants that could be used as food, medicine or a household use. Tell them that they are going to design their own colonial garden. Have them write about the use of their plant and illustrate their garden. Tell them they must have at least one plant that can be used as a household item, food and medicine. They must have at least 6 plants in their garden. Tell the class to use the time line, books in the learning center, or the library to do their research.

3. After Children are finished their projects collect and use them as a bulletin board. Tell the class that many of the seeds that grew in the settlers gardens spread and now grow wildly. Ask children how this might of happened. Tell the class that seeds of plants can travel in three ways: wind, water, and animals. Talk about which types of plants might travel these ways. Have children give examples.

5. After if there is time look at the plants from Lesson #2. Have the class fill in their observations. (See chart from lesson # 2). Review what a variable is and what plants need to survive.

Materials: Class chart from day two, markers, crayons, rulers, and research material for project.

Resources Used:

Jordan, H. (1962), Seeds by Wind and Water. New York, NY:

Thomas Y. Crowell Company.

Schaeffer, E. (1972), Dandelions, Pokeweed, and Goosefoot, How The Early Settlers Used Plants For Food, Medicine, And In The Home. Reading, MA.: Young Scott Books.

Means of Evaluation: Students will be evaluated through their colonial garden as to how the settlers used plants in order to survive.

Lesson # 5

Grade Level: 3rd grade

Time: 80 minutes

Objectives: 1. Students will be tested on their knowledge of plants. 2. Students will demonstrate becoming an responsible contributing member of society by actively participating in class activity.

Method: Students will be actively participating in a hands-on activity.

Guidelines for Behavior: 1. Students will respect the individual rights of others by listening to others while they are speaking and raise their hand if they wish to speak. 2. When going outside remind student of how they should walk, quietly and in a straight line.

Activities/Procedure:

1. Review material before the test. (See sample of review questions for lesson # 5). Give the class a short test on the science material covered in the unit.
2. Once class is finished talk about how trees and plants are important to our environment. Trees and plants help to clean the air and stop the ozone from depleting. Trees planted on hillsides stop valuable soil from eroding. Seeds and Seedling help to provide the soil with

nutrients. Plants and trees also provide animals with food and shelter.

3. Have the class look at their time line where it says future. Tell them that they are going to do something today that will help save the Earth. Tell the class that you are going to adopt a piece of the Earth. Arrange ahead of time a small piece of land in the school yard. Have the children pick up trash in the school yard. Place a do not litter sign up. Have the children plant flowers or seedlings. Tell the children that they can do the same thing in their own neighborhood. This teaches children to be responsible contributing members to society.

Materials: Some flowers, spoons to dig with, and garbage bags to collect trash in.

Resources Used:

Earth Works Group, ed. (1990), 50 Simple Things Kids Can Do to Save the Earth. New York, NY: Andrews and McMeel.

Spurgeon, R. and Flood, M. (1990), Energy and Power. London, England: Usborne Publishing.

Means of Evaluation: Integrated natural and social science test.

REVIEW QUESTIONS FOR LESSON # 5

1.) Name the parts of the plant.

2.) Give the function of each of the following parts.

   a. stem

   b. stomata

   c. roots

   d. leaf

   e. tendril

3.) What is the definition of a variable?

4.) What are the three things that a plant needs to survive?

5.) Who were the Pilgrims? Why did they come to America?

6.) Looking at the timeline name some plants that were used in the past for food, medicine, and household use.

7.) Who were the native Americans and how did they help the Pilgrims?

8.) Name three ways in which seeds travel.

9.) Give some examples of how plants are used today.

Name_____

An Integrated Natural and Social Science Test on Plants

1.) Draw and name the parts of a plant.

2.) What is the function of the root?

3.) What is the function of the blossom?

4.) The part of the plant that gathers sun to make food is called a _____.

5.) The part of the plant that gives the plant structure is called a _____.

6.) Name the three things a plant needs to survive.

7.) Name one way in which seeds travel.

8.) Name one plant and how it was used by early settlers as food.

9.) Who were the Pigrims and why did they come to America?

10.) How did the native Americans help the Pilgrims?

11.) Name one way in which we use plants today.